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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOC REF NO.	CONFIRMATION NO.
09/916,247	09/30/2001	Pierre Cote	4326-747	9131

7590

06/01/2004

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EXAMINER

MENON, KRISHNAN S

ART UNIT

PAPER NUMBER

1723

DATE MAILED: 06/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)	
09/016,247	COTE ET AL	
Examiner	Art Unit	
Krishnan S Menon	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 26-36 are pending.

Terminal Disclaimer

The terminal disclaimer filed on 4/19/04 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US 6,303,035 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Double Patenting

Claims 26-36 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1,3 and 6-61 of copending Application No. 10/461,687 in view of Smith et al (US 5,403,479). Instant claims, as amended, recite a process of filtering water containing solids in combination with a method of cleaning the membranes submerged in water under ambient pressure. The cited application claims the process of cleaning membranes, submerged in a tank under ambient pressure, and the Smith ref teaches the process of filtering the water and cleaning the membrane. Cleaning the membrane using the methods recited by the claims of the cited application would be obvious to one of ordinary skill in the art at the time of invention, which would be using the membrane for the filtration process, and one would clean the membrane to overcome the fouling of the membrane and restore the permeability as taught by the cited application and Smith reference.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 26-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith et al (US 5,403,479).

[Newly added elements in the claims by this amendment and the corresponding reference citations are underlined in the paragraphs below; deleted elements are struck through]

Smith (479) teaches a process of filtering water containing solids by immersing a membrane in a tank at ambient pressure (col 2 lines 63-66 and col 1 lines 53-66) containing the water and providing a trans-membrane pressure, with permeate side subjected to a negative pressure relative to the feed side for the filtration (Fig 2,7; col 15 line 63-col 16 line 10; see abstract of the ref incorporated in col : US, 5,248,424 to Cote. Et al.), with the permeate side connected to permeate outlet (line 22, and tank 27, fig 2), the membrane aerated (col 16 lines 20-25), backwashing, with wetting the membrane by a cleaning fluid of select concentration, periodically for a select period (col 15 table, lines 16-47, col 18 lines 13-29col 11 lines 22-61).

Re the limitations 'and a retentate in the tank', it is inherent; what remains in the tank is 'retentate' after 'permeate' is removed from the feed by the process.

Smith discusses about draining the tank during cleaning as in claim 26, but does not advocate draining the tank during the cleaning process as in claim 26 (col 10 lines 64-68, col 11 lines 22-30). However, a reference is no less anticipatory if, after disclosing the invention, the reference then disparages it. The question whether a reference "teaches away" from the invention is inapplicable to an anticipation analysis. *Celeritas Technologies Ltd. v. Rockwell International Corp.*, 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir. 1998). Also please note "Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments" (In re *Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971)).

Re when to drain the tank, the 'Markush group' claim language covers all the possibilities there are: before, during or after the cleaning step, with or without overlaps, and therefore, is anticipated by Smith.

Backwashing is done after the permeation step (see col 11 lines 22-61).

Claim 27: The cleaning is between once a day and once a cycle (see fig 6; col 13 lines 50-57).

Claim 28: The cleaning is carried out to maintain an acceptable permeability of the membrane as in instant claim 28 (col 13 lines 50 – 57, col 18 lines 5-12) and the cleaning steps from time to time is to increase the flux and reduce the rate of decline of flux in Smith (col 10 lines 64-68, col 11 lines 22-30)

Claims 29 and 30: The sum of the products of chemical concentration and duration of cleaning between 5,000 and 10,000 min.mg/L or equivalent for another cleaning chemical (col 11 lines 30-35: time less than an Hr, sufficient to diffuse enough

Art Unit: 1723

cleaning solution ... ; table line 9: NaOCl at 100 ppm, col 15 lines 34-36: cleaning solution at 10 ppm; these provide the CT values within the range claimed). Re the min.mg/L value "per week over a period of at least a month": Smith does not limit the cleaning process for less than a month – see col 1 lines 18-22, which describes the process as on-going.

Claim 31: recovery cleaning at least one month apart: Figure 4 gives more and less rigorous alternatives for cleaning over a 15-day period, and Smith teaches the cleaning process as a periodic process (col 1 lines 18-22). It may be noted that the type and frequency of cleaning would depend on the water quality and the fouling characteristics of the membrane. Discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Aller, 42 CCPA 824, 220 F.2d 454, 105 USPQ 233 (1955).

Claim 32: permeate is used as drinking water: intended use of the product made: Smith ref teaches purifying "ground water" in col 20 lines 35-43. Ground water is well known as a source of drinking water. [Also, please note that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)]

Claims 33-35: cleaning at regular intervals, mixing cleaning chemicals in flowing water in permeate side: see abstract and figures of Smith. Re mixing cleaning chemical

Art Unit: 1723

in flowing water, Smith teaches flowing water containing the cleaning chemical, the cleaning chemical being mixed in the water in a feed tank, which is equivalent. Re backwashing with permeate after backwashing with cleaning chemical, see col 12 lines 56-68.

Claim 36: Membrane is hollow fiber in smith – see abstract.

Response to Arguments

Applicant's arguments filed 4/19/04 have been fully considered but they are not persuasive.

Applicants' arguments in the second paragraph of page 6, that the Smith ref discusses draining the tank in separate cleaning methods, unrelated to the cleaning method of claim 26: One of ordinary skill in the art would look at the Smith ref as teaching methods of cleaning membranes which includes back-flushing with chemical cleaners and draining and flushing the tank after cleaning to get rid of the cleaning chemicals before further use, which information is taught as background information. Smith ref then goes on to teach improvements wherein draining the tank is taught as not desirable because the amount of cleaning chemical added to the system is too low to make any significant impact, and the steps of draining the tank of the retentate after cleaning and refilling the tank with feed water after cleaning could be avoided. One of ordinary skill in the art would also recognize that the retentate drained from the tank would require further treatment before disposal because this whole membrane process evolves around the treatment of wastewater that could not be disposed without

treatment. All of these drawbacks are recognized by the Smith reference when it teaches that the draining of the tank is undesirable in col 10 lines 59-68. Applicant's analysis of the reference is piece-meal: the Smith ref anticipates the steps of cleaning as in claim 26, with the step of draining being taught as undesirable, or not required – see col 11 lines 50-60. This same response is true for applicant's arguments re the *Celeritas* case in the bottom para of page 6.

Applicants' arguments re claims 27-31 are also based on draining the tank, and is already addressed. Re claims 29 and 30 Re claim 35, mixing the chemical in Smith is in a tank from which water is flowing to the permeate side, claim recites "...flowing water to the permeate side of the membrane and mixing a cleaning chemical into the flowing water"; the chemical is mixed in the water while it is flowing from the tank to the permeate side and therefore it is anticipated.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 1723

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Krishnan Menon
Patent Examiner


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